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ABSTRACT

This document summarizes themes developed and conclusions from the International Workshop on Educational Infrastructure. The opening topic was "Delivering Education and Training in the Knowledge Society." It was clear to participants that educational infrastructure must go hand-in-hand with reengineering processes to adjust to the needs of the social environment. Four working groups explored the issues, considering human resources, new technologies, and the requirements that educational facilities meet the needs of future students. The second theme, "Monitoring and Evaluation of Public Policies for Educational Infrastructure," considered the criteria for investment and education development policies, the role of central government in decentralized education policies, and alternative sources for financing the rehabilitation, major maintenance, or refurbishing of existing buildings or facilities. Three working groups discussed these issues, and general agreement was reached that major investment is required in the majority of schools in most participating countries to restore optimal functionality and security, that infrastructure issues cannot be regarded in isolation, and that it is necessary to establish networks of cooperation and exchange of information and experience. The third theme, "Promoting and Disseminating Good Practice in the Planning and Management of Educational Facilities," focused on strategic capital investment and described the experience of Nordic countries in the construction of school buildings and a program to improve school facilities in Bolivia. Four working groups explored these issues further. (SLD)

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International Workshop on Educational Infrastructure

Guadalajara, Jalisco, Mexico

CONCLUSIONS

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February 2002

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International Workshop in Educational Infrastructure,

Guadalajara, Jalisco, Mexico

THEME 1 - DELIVERING EDUCATION AND TRAINING IN THE KNOWLEDGE SOCIETY

Reporter: **Luis G. Benavides Ilizaliturri**

The opening topic of this *International Workshop in Educational Infrastructure* was "Delivering education and training in the knowledge society".

Guillermo Kelly, Prakash Nair and David Istance respectively told us about the technological changes, structural changes in the world and possible future scenarios concerning our approaches to education.

This triple presentation set out three central issues as a basis for discussion:

1. What is the role of those responsible for educational and training infrastructure, given that education is a lifelong process in a knowledge society, that education never ends nor can be reduced to a single event or limited to a single building?

2. In a globalised world open to trade and technology, what kind of educational infrastructure must be designed and built to meet new needs? What can be done with the existing infrastructure?

3. What specific minimum characteristics must educational infrastructure have to allow human beings to develop, acquire capacities for innovation and aptitudes - for skills; to learn to play, organise, create, transform and assume responsibilities?

Before proceeding to the report, it is worth recalling that Wolfgang Paul, winner of the Nobel Prize for Physics for his contribution to quantum mechanics, says that "theories are born from an understanding inspired by empirical matter that we perceive as reality. This understanding can be better understood if we describe it as the correspondence which is established between internal images and external objects when they are brought together."

Our ability to explain the world is limited by "the inability to observe phenomena properly and the inability to establish satisfactory analogies. This inability to establish satisfactory analogies is probably the biggest barrier to knowledge."[1] Our knowledge of reality, how we describe and explain it, and its consequent impacts on behaviour are the product of mental analogies or paradigms with which we apply our knowledge.

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[1] Wolfgang Pauli. Interview with *Science et Avenir*. December 2001, p.39

In the case of **education**, the mental paradigm which we all use and by which we judge the data we capture from the real world (*i.e.* the date people give us) is school and schooling.

It is worth noting, and I commend the organisers for it, that this first subject, being of philosophical/epistemiological nature, is not commonly the subject of deliberations in technical meetings. However, constructing knowledge around this subject provides an opportunity to give purpose and meaning, both in personal and professional terms, the concept of the educational system as a whole and everything to do with the educational infrastructure.

The questions raised for debate in the working groups encourage breaking with the traditional paradigms and moving from a vision of education as a temporal phase and space to lifelong education, from a rigid education for girls and boys to education for all without exception, from education through subject-based teaching to an education based on learning.

This said, I offer you below a summary of the discussions held in the working groups. I wish to recognise the efficient work of the reporters: Sonia Otero Escandell and, especially, Ana Clara Trinidad Espinosa thanks to whose careful attention we can now report the following results.

CONCLUSIONS

With the warning "that the only certain thing about the future is that it will be different" and "not to confuse education and school in a knowledge society", concerns were raised in the discussion groups as to who would control learning outside school and how society could prepare to check harmful knowledge.

After lively debates, the working groups came up with the following proposals:

a. Promote the necessary integration of the various actors (teachers, architects, builders, pupils, teachers, the community, etc.) in designing educational facilities for a satisfactory and comprehensive result.

b. Consider school as not the only place of education, but everywhere where pupils develop, i.e. community and the family.

c. Assume that the school builder must be a coordinator, because there are many actors, because the community must be involved and because sources of financing are needed.

It was clear to those who took part in the discussion that education must change and, therefore, that educational infrastructure must go hand in hand with re-engineering processes to adjust to the specific needs of the social environment. We must help to ensure that education is always a pursuit of a better quality life, and thus school must be a place of harmony and influences open to community participation. This cannot be achieved without:

1. Breaking with traditional paradigms and the consequent changes of learning methods and techniques.

2. The participation of society as a whole in visualising what the school building and facilities offer.

From a technical point of view, these circumstances demand:

- Ensuring the autonomy of classrooms.
- Partial elimination of bureaucracy.
- Implementation of proposed improvements in a coherent manner.

Essential if mental paradigms are to be broken is to:

a. Carry out a diagnostic of the educational infrastructure so as to determine the existing state of educational facilities in each region and their needs. In consequence, there would be an opportunity to take logical and coherent decisions to decide the future of existing buildings.

b. Transform existent facilities, as far as possible using them in line with the new needs and technologies.

c. Endeavour to ensure that educational facilities have a value beyond the school premises, in order to achieve an interaction between school and society.

d. Involve those responsible for the design of educational buildings and facilities in the pursuit of appropriate solutions.

e. Consider the following as minimum characteristics of new educational facilities:

   - Flexibility.
   - Autonomy.
   - Realism.
   - Social involvement.
   - Inclusion of elements of the entity (regionalisation).
   - Multi-functionality.

Thus the new school infrastructure must be harmonious, comfortable, modern and above all congruent with the environment and ecological concerns, and the infrastructure that we already possess will have to be modernised, because much of it does not meet the new needs.

Finally, it should be underlined that educational infrastructure is not anodyne. It represents human values and ways of thinking about the very nature of the human beings that we are and can be as individuals and collectively.

In consequence:

- It is not enough just to equip educational premises with new technologies; a total transformation, an awareness of dignity and sovereign rights are required.

- The participation of experts (educationists, sociologists, psychologists, computer experts, etc.) and of society, as the future user, in the design of educational facilities appropriate to each region, culture, etc. is an inescapable imperative.

This is the fundamental meaning of federalism and educational decentralisation: recognising personal responsibility for the humanising processes, in the knowledge that groups of people (family, community, parish, office, government, etc.) also have that responsibility.

A very important factor for the educational infrastructure is the demographic aspect, not just because it allows consideration of the quantitative and qualitative aspects, but generally because in the context of this decentralisation, states can identify their own needs and find different solutions relevant to each locality. The common denominator of each project implemented in this way will give us a profile of the minimum specific characteristics required by each educational facility, as well as those which any public infrastructure must possess in respect of its educational function:

- Security.
- Quality.
- Comfort.

Finally, in practically all the working groups, it was stressed that the core of any educational work and its justification is the concrete, unique, unrepeatable and diverse nature of the **human being**. Thus, all our activity will be governed by our historic character and the need for all of us to keep on learning so as to respond "in a unique and unrepeatable way" to each community's individual demands and together seek specific solutions in which the community itself is involved.

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As a final call, it was unanimously recognised that this subject is difficult and complex. It thus requires further study through exchanges, symposiums, local workshops, conferences, etc. It was asserted that, although it is not a specific task of engineers, architects or bodies responsible for educational infrastructure to modernise and humanise the process of education, we cannot stay on the fringes of this process and, consequently, we will have to participate actively in these matters, and equip ourselves to discover new and creative processes, more consistent with the quality education which we seek.

It is a human commitment to ourselves and the future.

Luis G. Benavides Ilizaliturri
Guadalajara, Jalisco, 27 February 2002.

DISCUSSION

WORKING GROUP 1

MODERATOR: SONIA OTERO ESCANDELL, CUBA
REPORTERS: JUAN EDUARDO TRUJILLO GUTIERREZ, CAPFCE, MEXICO
OCTAVIO RAMIREZ RAMIREZ, AGUASCALIENTES, MEXICO

Sonia Otero: Human resources are a country's most important resources, hence the importance of this event and the particular subject that we, architects, builders and teachers, were there to discuss, to find solutions to the three questions posed by the moderator on the subject and especially to make everyone aware of the interrelationship between our professional activities.

Gregorio Farias Longoria: was interested to share experiences in the debate concerning the views of the experts that there should be no confusion between education and school, and think about who is going to control education outside school and how society can guard itself against harmful education.

Luis Guardado: One example was the one adopted in Veracruz where it had primarily been necessary to take account of a change in society's attitude, a proper valuation of the family and the development of human values desirable in children and adolescents.

Jose Rafael Marinez Garfia wondered how to define education outside school, where to put it and who is responsible. He also pointed out that television is only a tool, and should be used as a tool to help teachers in their work. The same applied to the Internet. Both should be used as technological tools.

One should think about what to do with the existing infrastructure, and take into account that there are community interests, attitudes, positive or otherwise, which it could be useful for students to learn.

In his view, there is a need to make the most of what is available and modernise it with new technologies.

Guillermo Herbert Sen shared with the group an experience which he had once had in Cuba where teachers thought that in the learning process it was necessary to read and write Spanish well, and have control over the distracting elements which could be part of the furniture, or part of the school buildings, such as a wall or a window. On the characteristics of the classroom, he thought that the teacher should be raised on a dais, which would help him in his task. Another important element was writing on a whiteboard, a new technology which helped the teacher to preserve his health.

He also thought it very important to include civics in the school curriculum.

Prakash Nair said that in his view distractions sometimes occurred when the teacher was unable to keep the attention of the pupils, arouse interest in using the space and find ways of motivating pupils

and that was the teacher's responsibility. He referred to experiments in Australia on the use of traditional classrooms with new methods.

Sonia Otero commented that the teacher is an important figure who should be familiar with the use of new technologies and new teaching methods. The use of new technologies can help not only for teaching but also to stimulate discussion and links with the community.

Guillermo Herbert Sen added that on the subject of distracting elements, he had been referring to the pupils and he agreed with the role of teachers in that respect. He also referred to excellence in education and the need to encourage reading.

Rodolfo Almedia referred to the experience that not everything is a question of cost, and described projects where various spaces are used instead of traditional classrooms, such as central courtyards or gardens, and projects where teachers work in teams and parents are involved.

Francisco Orozco Sonora mentioned his personal experiences with family education, and stressed the importance of human resources and of acquiring well-equipped premises, as the classroom is also the street, the home, and society in general. The teacher is primarily responsible for what happens in the classroom and should set an example not only as a professional but as a person.

Maria Magnolia Santa Maria talked about teachers who lack a vocation and do not do their job, and pointed out that a school should be fitting and safe.

Sonia Otero said that to be consistent with the UNESCO goal of education for all, which is nothing more than achieving equality in education of children and adolescents, it is of paramount importance to hold workshops bringing together architects and people directly concerned with the planning and implementation of school buildings and ensuring that they are as economical as possible, taking into account the latest educational developments.

She also mentioned the success of the Mexican experience with distance learning, using tools such as satellite, television and video to reach pupils who because of where they live have difficulty in going to school. It is an example of how technology can help to achieve greater equality in education.

Gregorio Farías Longoria said that schools are just one of the places where one goes to learn, but there is also the environment where children and their families live. Project designers must be told which scenario they should consider in their work.

Prakash Nair said that if clients gave enough information it would allow sufficient flexibility in his project and not just in terms of his own criteria.

Luis Guardado thought that the learning process should be provided with all kinds of opportunities so as to include all the elements needed to take a decision in line with their interests.

Prakash Nair concurred with the previous speaker's view that children and adolescents should have every opportunity to experiment.

Moreover, there were things that worked in the past for previous generations, but which now, thanks to developments in technology, would not be useful.

Jaime Sanchez Ferro wondered how teachers and architects can work together to propose the kind of educational infrastructure that will be needed in the future, and whether the classroom format with which they were all familiar will continue to be appropriate.

Prakash Nair replied that when a new school is built, it is if it were an architects studio, working both in it and outside. The criteria for an open or traditional classroom are subject to discussion, study and experiment, and should be determined by each country or locality in accordance with its circumstances and experiences. If there is anything on which teachers agree it is that institutions and groups should not have large numbers.

Sonia Otero said that during the working group various ideas had been expressed on answers to the questions on the subject and these had been evaluated by the participants.

GENERAL CONCLUSIONS

1. It is necessary to involve the various players (educationists, architects, builders, pupils, teachers, the community, etc.) in the design of educational facilities to achieve a fully satisfactory result.

2. The school should not be regarded as the only place for education, but anywhere else where the learner develops: the community and the family.

3. The definition of what a school building should be must take account of all the factors, not a quick political decision, but the characteristics of those concerned and the community where it is built.

4. The use of new technologies (satellite, TV, video, internet, mass media, etc.) will be a way of achieving fairer education with access for all learners.

5. The existing infrastructure must be refurbished and adapted to the new systems which require greater flexibility, openness, coverage and in the case of new technologies, create the proper physical conditions for their use.

WORKING GROUP 2

MODERATOR: ROBERTO LAGARDA LAGARDA
REPORTERS: RENATO VAZQUEZ PINEDA
CARLOS BOCANEGRA PEÑA

CONCLUSIONS

1. Educational areas should be designed in accordance with strategic policies and teaching methods, and take account of all facilities and equipment. But there is more to that than the building process; the project should also analyse its purpose and functionality, and consider whether it needs to be redesigned. A continuous dialogue should be conducted with those responsible for the construction and those engaged in education and learning.

   The school builder should be a coordinator, because there are many players involved; the community must be involved and sources of financing are needed.

   Information technology should certainly be included, but adapted to people's real education and learning process and the way they live. So far, we have not been doing what we should. We need to take on the role of transformer, using the federalisation framework since we have the opportunity to present new projects linked to the needs of the users: pupils, teachers, parents and the community, so that they have a sense of ownership, reflecting the culture and identity of the region, taking account of the environment, the ecological surroundings and the materials in the region, but without forgetting that the basic principle is education and learning for learners. The technology in the projects should also be adapted to the climate, and maintenance costs should be budgeted.

   In conclusion, a joint evaluation by all the actors is needed so as to include all the different perspectives in the design, taking into account the environment, climate, culture, ecological surroundings and building materials. Lower costs of up-to-date equipment should be sought.

2. Infrastructure should reflect the roots of each community, providing safety, comfort and functionality, for education and learning, and thus return to a traditionalist approach.

   Existing infrastructure could be used for teacher training, community courses, education offices or as required by each state.

3. We should gather information and design the learning areas by inviting teachers, the community, experts and suppliers to take part in symposiums and local workshops, to consider the quantitative and qualitative aspects with the idea that states would determine their own needs which would then give us the specific characteristics needed by each educational area.

WORKING GROUP 3

MODERATOR: MANUEL DE JESUS MONREAL, DIRECTOR OF INTEGRATION AND CONTROL OF THE EDUCATION AND HEALTH SECTORS OF THE SHCP, MEXICO
REPORTER: ANA CLARA TRINIDAD ESPINOSA, CAPCFE, MEXICO

DISCUSSION

SEIT ARTURO CARBAJAL

It is important to redesign areas and change teaching processes. A more human school is needed. The school has lost its place as an educational entity. Teacher training is not in line with society's needs.

UNIVERSITY OF NUEVO LEON

The problem is the lack of classrooms. There is no dehumanisation of education but educational areas are not used properly.

DEGETI

The pace of change and the impact of telecommunications are making buildings rapidly unsuited.

The buildings of the fifties should be adapted to ISO 9000 standards.

Institutions that trained teachers must have a vision of the school of the future.

A problem that must be tackled is the obsolescence of equipment.

UNIVERSITY OF NUEVO LEON

They are planning for the future and asking what they will do with the buildings they have now.

TECHNOLOGICAL UNIVERSITY

At this level, it is necessary to strengthen links with firms for the purpose of work experience in their premises, and instead of acquiring specific equipment, seek simulation equipment.

CAPECE NUEVO LEON

It is important not `to get trapped in outdated models. Education is designed as teacher-based and not self-learning. For example, they are trying to change the desk concept, suggesting simple and adaptable tables and chairs in order to deal with rapid obsolescence. That is the price to pay for quality education.

ARGENTINA

For them it is a problem of how to connect isolated schools which are very poor and have few resources. It has been decided not to wait until the buildings have been adapted, but rather to first connect and then adapt, because the pupils are the ones who create their own educational spaces.

CHIAPAS

At their stage, the first step is to analyse the existing situation. Everyone should adjust to his own situation and seek his own options.

SPAIN

Education is not confined to a single facility. The question is to what extent the community shares in the use of facilities. Why not use those facilities for social activities? Why were schools closed during the holidays? Why are they not used on Saturdays and Sundays? School as an educational facility should be open more.

NUEVO LEON CAPECE

Efforts should be made to achieve greater community involvement and extend what has been well learned in CAPFCE about social services. During the construction of the school, they had meetings with social services. *Nuevo León* took measures to open libraries in secondary schools longer for the district, and the State Secretariat of Education instituted a summer programme of musical, sports and other activities in schools.

SEIT

The reality is that the system must be reformed. The central concern is to achieve quality schools, and that means reforming education management, creating the educational project and involving the school community.

In future, more suitable, more modern and more creative buildings must be constructed.

For example, teachers' colleges have been established but there is no time to exchange experiences and improve the quality of the educational content.

HIDALGO CAPECE

In that state, the aim is to develop sustainable but cheap infrastructure. They are developing rehabilitation programmes designed to create a culture of care of facilities in the programmes for maintaining the school.

MEXICO STATE CAPECE

The centralist era of the CAPECE is over. All the states are different, and people must adapt to their regional needs.

HIDALGO UNIVERSITY

They agree that each specific case must be studied and analysed in order to develop dynamic educational facilities. In their case, they are creating multiple facilities used by different disciplines and different campuses.

SEIT

They are at a crossroads: tackling existing needs while forecasting population change, according to criteria of sustainability and respect for the environment. Teachers need architects, with their ergonomic perspective, to see and imagine things before they happen and create new facilities for that new and unknown future.

In addition, there is the question of what to do with existing facilities; the answer is that they should be kept. It is like the facets of a diamond and construction firms must be fully involved in the future.

NUEVO LEON CAPECE

The changes in society are permanent. An open-minded approach to that permanent change means that the school - classroom - education paradigm must be changed in the vision of society. It is a case not just of accepting change but of becoming agents of change.

CONCLUSIONS

"The only certain thing about the future is that it will be different."

- The conclusions for the first question are:

Educational processes must be humanised through modernisation, with training to identify innovative and creative processes more consistent with quality education.

Educational facilities must be redesigned, and the content of curriculums and teaching methods must be fundamentally and comprehensively changed. It was not just a matter of architecture but of the education system as a whole.

- Second question:

The new school infrastructure must be harmonised, comfortable, modern and above all congruent with its environment, including ecological concerns.

The existing infrastructure must be modernised, because much of it does not meet the new needs.

- Third question

The educational infrastructure should permit harmonious development of students. That means planning an interactive centre to facilitate self-learning through play and teaching materials to learn how to live, learn how to learn and learn how to interact with physical buildings.

The educational infrastructure must go hand in hand with re-engineering of processes and adapt to the specific needs of the social environment. School must be a preparation for life, an influential harmonious space which allows community involvement.

It must be accepted that the educational space is created by the students.

WORKING GROUP 4

MODERATOR: CARLOS MIRANDA (COSTA RICA)
REPORTER: ROSALIO NAVA (CAPFCE, MEXICO)

1. What is the role of those responsible for educational and training infrastructure?

Those responsible for the design of educational buildings and facilities must find appropriate solutions, taking into account:

1. Flexibility.
2. Autonomy.
3. Realism.
4. Social involvement.
5. Inclusion of elements of the entity (regionalisation).
6. Multi-functionality.

2. What kind of educational infrastructure must be designed and built to meet the new commitments?

The involvement of society as a whole in designing the school buildings and facilities has the following benefits:

1. Independence of classrooms.
2. Partial elimination of bureaucracy.
3. Collective implementation of proposed improvements.

A diagnostic of educational infrastructure would determine the current state of educational facilities in any region and its needs, and would thus be an opportunity to take logical and coherent decisions for the future of existing buildings. Existing buildings should be transformed, making the most of their facilities in line with the new requirements and new technologies. An educational facility must extend beyond the school premises, in order to achieve an interaction between school and society.

3. What specific minimum characteristics must educational infrastructure have?

It is not enough to provide educational facilities with new technologies. It requires a total transformation and total awareness of society as a whole. The involvement of experts (educationists, sociologists, psychologists, computer experts, etc.) is essential in the design of educational facilities appropriate to each region. Precise guidance must be given to municipalities, such that the design meets a minimum number of specifications in:

1. Safety.

2. Quality.

3. Comfort.

Albeit that each community requires its own specific solutions.

International Workshop in Educational Infrastructure,

Guadalajara, Jalisco, Mexico

THEME 2 - MONITORING AND EVALUATION OF PUBLIC POLICIES FOR EDUCATIONAL INFRASTRUCTURE

Discussion questions:

What indicators and measurement parameters are needed to be consistent with the criteria for investment and education development policies?

What role should central government play in decentralised education policies and what role should local government and schools have in the management of resources for educational infrastructure?

What are the possible alternative sources of financing for the rehabilitation, major maintenance or refurbishment of existing buildings and facilities?

What role could private capital play?

Moderator	Robert Heatley	UAM-Mexico
Reporters	Graciela Ecenarro Emilio A. Mateo Galguera	Argentina CAPFCE Mexico
Experts	François Louis Richard Wilkinson Jadille Baza Apud	France United Kingdom Chile

GENERAL CONCLUSIONS ON THE THEME

On the theme of "Monitoring and evaluation of public policies for educational infrastructure", views were expressed by the experts, François Louis (France), Richard Wilkinson (United Kingdom) and Jadille Baza Apud (Chile). The moderator was Robert Heatley (Mexico) and the report was prepared by Graciela Ecenarro (Argentina) and Emilio A. Mateo Galguera (Mexico).

The approaches of each of the participating countries were presented, including the problem of existing physical infrastructure and the provision of new buildings to develop the learning process.

Based on those views, the following points were agreed:

1. A great majority of schools in our countries require major investment to restore optimal functionality and security, the latter in the broad sense, not only security of the building but also people.

2. This is due to the fact that not enough has been invested in the maintenance and upkeep of the majority of school buildings.

3. Those of us who build educational facilities also need to adapt many schools to current educational needs and modernisation of equipment, since many of these buildings were designed for different forms of study and teaching and learning methods than those of today.

4. There are also other factors which we must take into account such as the need to incorporate new information and communication technologies, demographic trends in the area, different uses required by the community for the same buildings as well as the inclusion of students with different abilities.

5. For this reason it is important to regard educational buildings as consistent with teaching methods, allowing flexibility of teaching areas, taking into account the constant changes in learning processes.

6. Also clear is the need to bear in mind that school buildings cannot be considered in isolation, and that it is highly necessary for all the actors involved in the education process, pupils, educational community, parents, the community as a whole, to participate. An important element to be included arises in connection with the cost of investment in school buildings, which is the "knock-on affect", whereby it is necessary to include a series of derivative costs such as equipment, maintenance and operation. It was also clear that it was necessary to develop preventive maintenance programmes, with the participation of society as responsible for this activity, and attempt to forecast future education trends and analyse demand for educational infrastructure.

7. The important role of central government was also addressed in developing public policies to raise the quality and performance of pupils. Supporting local governments and the schools themselves, strengthening decision-making processes in planning and using physical infrastructure resources, ensuring at all times a fair distribution of resources between the different regions. The need thus emerges for a clear definition of the roles of the various players, so that they can take on their particular responsibilities. The central government must define standardising processes in accordance with state policies, provide tools to develop their policies, define policies for transfer of resources to meet the states' real needs taking into account their particular characteristics and ensure that its policies lead to a decentralisation of functions.

8. In countries with scarce economic resources, the introduction of private capital is important in developing the physical facilities of our schools, but this does not mean that the state, regional or municipal authority delegates its responsibility for public education policies. States should enter into commitments with private institutions to obtain long-term credits, for use in educational infrastructure, construction, rehabilitation, maintenance and equipment in accordance with previously identified needs.

9. There is also a clear need to establish mechanisms for evaluating the results of investment to formulate criteria for use in the future. In this connection, indicators must be defined and parameters established in accordance with the various local situations, not only from the economic point of view, but primarily taking into account quality of education, ensuring equal opportunities to enter and remain in the education system.

10. Finally, it is necessary to create a network of co-operation and exchange of information and experiences between state agencies, to allow them to fill existing gaps in their operational, administrative and management capacities.

DISCUSSION

WORKING GROUP 1

MODERATOR: GRACIELA ECENARRO

REPORTERS: LUIZ RICARDO LEITE

JOSE JAIME SANCHEZ FERRO

QUESTION ONE:

The measurement indicators must reflect real local needs, such as growth and expansion of the student population.

The indicators may be the number of students entering university, the level of education, cost of maintenance, level of leaving, useful life of facilities.

Parameters: verification of student demand based on level of education, regional geographical characteristics, the need to make a physical inventory of the existing state of the educational infrastructure, monitoring of students through their professional life, percentage of terminal efficiency and verification of demand.

QUESTION TWO:

The central government must define standardising processes in accordance with state policies, provide tools to develop their policies, define policies for transfer of resources to meet the states' real needs taking into account their particular characteristics and ensure that its policies lead to a decentralisation of functions.

Local government must be transparent and efficient in using public resources, and must assume its responsibilities more effectively, encourage the participation of educational communities and follow national policies.

QUESTION THREE:

Preventive maintenance programmes must be developed, with the participation of society as responsible for this activity, and attempt to forecast future education trends and analyse demand for educational infrastructure.

Participation of private initiative in investment in equipment of specialist workshops and laboratories should be sought in order to update them.

Resources should be transferred directly to schools so that they can carry out minor refurbishment and maintenance.

There should be a minimum parameter for school provision consistent with the situation in each region.

WORKING GROUP 2

MODERATOR: JADILLA BAZA APUD
REPORTERS: CARLOS A. CRUZ COUTIÑO
LUIS ELOY RIOS COBOS

QUESTION ONE:

A conclusion of this working group is the recommendation to federal and state governments to include a diagnostic of the physical educational infrastructure in order to obtain the information necessary to plan investment properly in line with the specific needs of existing facilities at all levels of education, and thus obtain information to consider possibilities of conversion.

QUESTION TWO:

The federal government, through its central structure, should lay down standards and use its position to take advantage of its experience accumulated over time as the overall directorate and thus avoid the setbacks that were caused in some countries by its ill-planned disappearance.

Under the process of federalisation, it is right that local governments (state or regional) should engage in building educational infrastructure because they are the ones who first feel or foresee the requirements and needs of their localities, directly supported by the experience of the federal agency.

Thus the working group recommends that municipalities should deal with minor maintenance, thereby avoiding the costs of supervision and technical staff if they are sent by state agencies, since municipalities have the personnel necessary to carry out the above task satisfactorily.

QUESTION THREE:

States should enter into commitments with private institutions to obtain long-term credits (20-30 years), for use in educational infrastructure, construction, rehabilitation, maintenance and equipment in accordance with previously identified needs.

The relevant authorities should undertake to implement fiscal incentive strategies for companies that invest part of their profits in the construction of educational infrastructure.

Social participation programmes should be implemented.

WORKING GROUP 3

MODERATOR: JOSE LUIS LOPEZ DIAZ BARRIGA
REPORTERS: MIGUEL A. GARCIA BELTRAN
ANA CLARA TRINIDAD ESPINOSA

GENERAL CONCLUSIONS:

1. It is necessary to create a network of co-operation and exchange of information and experiences between state agencies, to allow them to fill existing gaps in their operational, administrative and management capacities.

2. To advance and consolidate the federalisation process, it is necessary for the rules to be clearer. The state must ensure the unity of the education system, but the ambiguities of the regulatory framework makes this difficult and cumbersome.

3. Achieve greater commitment from society (community and business) to maintaining physical educational facilities.

4. The transfer of resources to states and municipalities when they do not have sufficient technical and administrative experience causes waste and inefficiency in their application, and may put at risk the quality and safety of the buildings constructed.

5. If we want to involve entrepreneurs and businessmen in maintaining buildings, we must offer them clear options for managing the resource to ensure that it is used with transparency and efficiency.

6. Ensure that mechanisms for coordination between planning and financing departments and educational infrastructure function properly, so as to prioritise the allocation of resources.

7. Planning criteria should be redefined, and should not be based only numerical parameters.

8. All actors involved in the decision-making process on application of resources should function in a coordinated manner.

9. Build a flexible, safe, comfortable, relevant school which reflects all the changes in society is not just a job for architects, but the education system as a whole.

10. It will be necessary to create new performance indicators, which reflect the new learning-based education methods rather than teaching.

11. It will also be necessary to create a matrix of priorities to meet needs, including redefining the role of local organisations, as indicators of the organisation of planning of spending on educational infrastructure, using all available resources.

12. There must be further work to define what we mean by the knowledge society and what kind of schools we need to meet its needs.

THEME 3 - PROMOTING AND DISSEMINATING GOOD PRACTICE IN THE PLANNING AND MANAGEMENT OF EDUCATIONAL FACILITIES

The moderator for the theme was Architect Rodolfo Almedia (UNESCO), reporters were A Luiz Ricardo Leite (Brazil) and Alberto Segarra González (CAPFCE Mexico) and experts were Kelvin Crump (Australia), Inge Mette Kirkeby (Denmark) and Maria Magnolia Santamaría (Venezuela).

The first expert addressed the theme of "Strategic capital investment planning", in which he highlighted the importance of strategic planning to obtain sufficient financial resources, with reference to the relevant and related aspects of infrastructure: buildings, personnel and process.

The second expert presentation was by Inge Mette Kirkeby who described the experience of the Nordic countries in the construction of school buildings. She stressed the need when designing projects to consider the changes taking place in our society and gave details of the experience of the Nordic group in educational buildings.

Among the subjects discussed, we highlight:

- Municipalities are responsible for schools and school buildings.
- The work network establishes interchange and discussions on experiences and ideas on the infrastructure in their countries.
- Establishment of networks of researchers, as in the Nordic countries, responsible for researching the most urgent subjects.
- The work carried out by the network must give a lead and stimulate debate.

Lastly, expert Maria Magnolia Santamaría Diaz, presented Venezuela's experience in implementing the "Bolivarian Schools" project.

Before describing the "Bolivian Schools" programme, she addressed aspects of the trends in school buildings in Venezuela, highlighting the strategies to achieve an efficient physical school infrastructure, including planning, programming, design and maintenance. She also spoke of the effective actions undertaken jointly with communities, public institutions, private firms and international organisations in relation to the application of the "school buildings safety and maintenance programme" and the "programme on inter-institutional agreements for school buildings".

Bolivian Schools:

The Bolivian Schools project was the result of factors such as malnutrition and low performance at school, among others. It was a school designed to provide effective social change, democratic participation, comprehensive education, permanent teaching reforms, combat school exclusion, etc.

For this reason, the school is primarily concerned with the school day as a whole, food, health for pupils, development of new forms of school management and community involvement.

We can conclude that the experiences described involve ever-increasing integration, participation and commitment of the actors in the process: technical staff, federal, state and municipal government, education experts, private firms and above all the school community.

WORKING GROUP 1

MODERATOR: GRACIELA ECENARRO
REPORTERS: LUIZ RICARDO LEITE
JOSE JAIME SANCHEZ FERRO

QUESTION ONE:

The criteria to be considered should ensure the relevance of the educational infrastructure, by issuing standards on safety, hygiene and comfort in accordance with the needs of each region.

Another criterion is to pursue public policies for the efficient management of public resources which are transferred for investment in educational infrastructure.

QUESTION TWO:

The experience that can be drawn from decentralised administration is that resources should be transferred directly to states and municipalities. A central agency should support the functioning of the above, by issuing and constantly updating standards with their active participation and holding training and certification programmes for technical staff in supervising educational infrastructure works. Regional projects should be developed in accordance with the needs of states and municipalities.

It is necessary to develop and implement a process for monitoring resources allocated and to provide information on progress in the works in order to have parameters for measuring the results, so as to take steps to improve central government management procedures. This in turn will improve the administrative process of releasing resources to states and municipalities and thus strengthen their technical and administrative capacity.

In addition, once the executive function of states and municipalities has been federalised, the resource should not pass through a large number of administrative departments, because that delays their application and leads to targets not being met.

The period for decentralising the process should be gradual, supported by a legal framework to delegate responsibility for use of resources to states and municipalities, with the support of central government.

This allows central government to define the policies and specific objectives of federalisation by issuing operating manuals for each level of education.

The success of a decentralising process depends on effective and efficient central, state and municipal administration, but to achieve this requires information on educational needs and collaboration with the various levels of education and national and international organisations in developing public policies to achieve constant improvement.

Consolidating a process of federalisation requires a central government agency as a technical support body to collect and distribute to governments and municipalities all the information they need to

improve the technical administration for constructing educational infrastructure with optimal use of resources. A good example is decentralisation in the United States of America.

QUESTION THREE:

The minimum administrative mechanisms that need to be contained in standards for educational buildings are those which ensure quality, cost and safety. They must contain minimum specifications on safety, functionality, flexibility and adaptation to change in line with educational needs, and with the necessary furniture and equipment to fulfil the educational objectives.

Another mechanism is issuing booklets on preventive and corrective maintenance, combined with training for the society connected with the educational buildings, to teach how to keep schools functioning properly and how to solve basic technical problems.

QUESTION FOUR:

An effective practice in planning and managing educational infrastructure is to work with central, state and municipal government to establish projects and models in line with the needs of each geographical region, identifying necessary adaptations of designs to adjust them to pupils real needs.

Finally, as a support to the dissemination of experience on this theme, UNESCO, through its regional education office for Latin America and the Caribbean, will collaborate with CAPFCE on a study of the decentralisation of CAPFCE. This study will be published in all the countries of the region which are engaged in decentralisation and will provide information about progress and successes in different states of the Republic of Mexico.

WORKING GROUP 2

MODERATOR: JUAN CARLOS MACHINENA MORALES
REPORTERS: PEDRO LEETCH BALCAZAR
ALBERTO SEGARRA GONZALEZ

The following points were made by participants:

MIGUEL BARRENO

- The Banco Mercantil provided support for the national conservation and maintenance prize.
- Through the indigenous education programme, we continue a balanced construction of schools, about ten schools a year.

MANUEL DE JESÚS HERNÁNDEZ

- Private sector share in investment.
- Schools must be relevant to the community.
- Obtaining and disseminating information on decentralisation and its results.

JUAN CARLOS MACHINENA MORALES

- Participation of society.
- Involvement of firms.
- Creation of a standardisation sub-committee in each state.
- Quality council.
- Education should be seen not only in terms of schools, but culture and sport.
- Re-use of facilities.

CARLOS MIRANDA

- Community participation in a community project, pre-school activities, workshops, etc., where the community presents its needs.

PEDRO RAMÓN GUILLERMO

Question: How can firms become involved?

Answer: Through promotion by the state government and tax reliefs, and improving the municipal administration through alternative programmes, CONAFE, PAREIB, etc.

M. BENAVIDES

- Create facilities with more applications, so that the community feels that the facilities belong to them.

REQUEST:

- UNESCO should publish the decentralisation of the CAPFCE and the creation of agencies which are grouped, so as to inform about progress and achievements in the various states.

THEME 3 - MANAGEMENT OF EDUCATIONAL FACILITIES

WORKING GROUP 3

MODERATOR: ARCHITECT MARÍA SANTAMARÍA (VENEZUELA)
REPORTER: ARCHITECT EMILIO MATEO GALGUERA (CAPFCE)

Conclusions:

1. As indicators or parameters for measuring the congruence of investment criteria with public education development policies, certification of the work of higher education institutions, which should be fully comprehensive, was proposed.

2. As a general indicator, criteria related to the student were proposed, *e.g.* costs of facilities per pupil, depending on level of education, type of climate, etc.

3. It was concluded that it is valuable to have information on all experiences, good and bad, in the federalisation process, so as to learn from them all.

4. Also stressed was the importance of standards for the design and construction of educational facilities, in some cases in the form of criteria and recommendations, and in others, such as safety, maintenance and functionality, compulsory. The comment was also made that private educational institutions should comply without exception.

The working group proposed to ask UNESCO to establish, or where one existed, revitalise, an information centre on physical infrastructure, with a Website, giving access to the work being done by different institutions responsible for educational infrastructure in each of our countries. Thus, where each can "upload" what he considers appropriate and useful to similar organisations, in order to avoid duplicating efforts and repeating the same mistakes.

THEME 3 - MANAGEMENT OF EDUCATIONAL FACILITIES

WORKING GROUP 4:

MODERATOR: ALFREDO VILLARELLO ORTIZ (TLAXCALA, MEXICO)
REPORTER: FRANCISCO M. OROZCO (SONORA, MEXICO)
ROSALIO NAVA (CAPFCE, MEXICO)

1. What are the criteria for determining whether the management of the infrastructure is inadequate?

- Cost-benefit ratio of the student and consequently to society.
- Equality and educational coverage.
- Appropriate location of the school facilities in social and environmental terms (viability and sustainability studies).
- Involvement of society in sharing in the use of educational facilities.

2. What experiences of decentralised administration of educational infrastructure should be followed? Which should be avoided? Why?

- Allowing regionalisation of projects.
- Adaptation of prototypes to local needs or demands.
- Adapting solutions to problems in the region.
- Decentralisation without standards, administrative, legal and technical control.

3. What are the minimum administrative mechanisms that should be laid down in regulations on school facilities: design, flexibility, construction, safety (reduction of vulnerability), maintenance management?

- Allowing social change.
- Strengthening of society.
- Developing aspects of ownership (breaking with traditional paradigms).
- Democratic participation.

4. How can planning and management of educational infrastructure be synthesised so that, without losing the specific nature of each place, they can be effectively universalised and disseminated?

- Existence of a list of successful local experiences, to be disseminated in a timely and effective manner.

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Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)

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